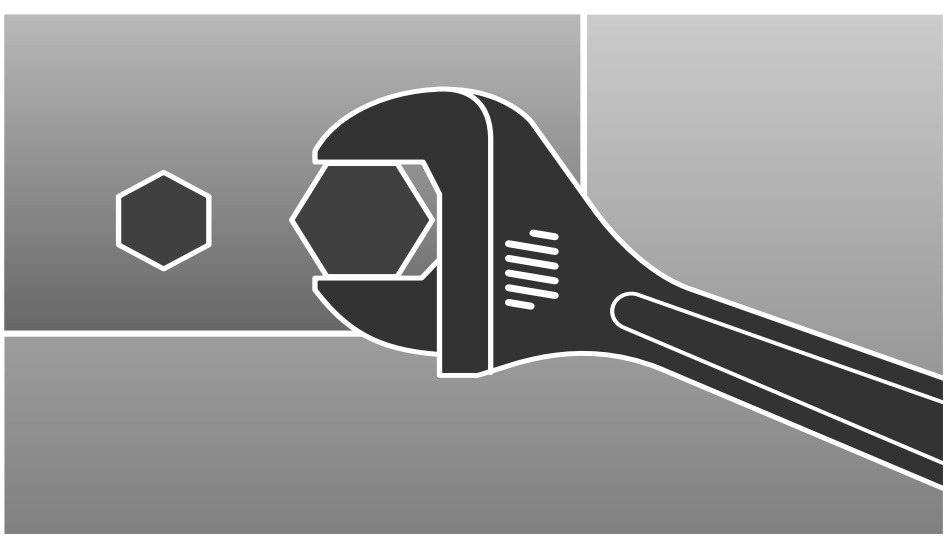
SAMSUNG

INSTALLATION MANUAL
MANUAL DE INSTALACIÓN
MANUEL D'INSTALLATION
MANUALE D'INSTALLZIONE
MANUAL DE INSTALAÇÃO
INSTALLATIONS-HANDBUCH
ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ
ИНСТРУКЦИЯ ПО УСТАНОВКЕ

Heat pump	Cooling only
AVMBH020CA0	AVMBC020CA0
AVMBH032CA0	AVMBC032CA0
AVMBH040CA0	AVMBC040CA0
AVMBH052CA0	AVMBC052CA0
AVMBH072CA0	AVMBC072CA0
AVMBH020EA(B)0	AVMBC020EA(B)0
AVMBH026EA(B)0	AVMBC026EA(B)0
AVMBH035EA(B)0	AVMBC035EA(B)0
AVMBH052EA(B)0	AVMBC052EA(B)0
AVMBH070EA(B)0	AVMBC070EA(B)0

System Air Conditioner
Aire acondicionado sistemático
Climatiseur numérique multifonctionnel
Sistema Aria Condizionata
Sistema Ar Condicionado
Klimaanlage System
Σύστημα Κλιματισμού
Системный Воздушный Кондиционер



ⒺⓈⒻⒾⓅⒹⒼⓇ DB98-05178A(2)

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Chapter 1

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Preparation for Installation

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General

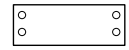
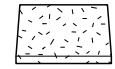
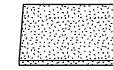
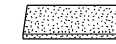
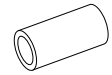
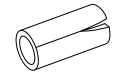
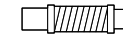
Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- Combustible gases
- Saline air
- Machine oil
- Sulphide gas
- Special environmental conditions

If you must install the unit in such conditions, first consult your dealer.

Accessories

- The following accessories are supplied with the indoor unit.
  The quantities are indicated in parentheses.

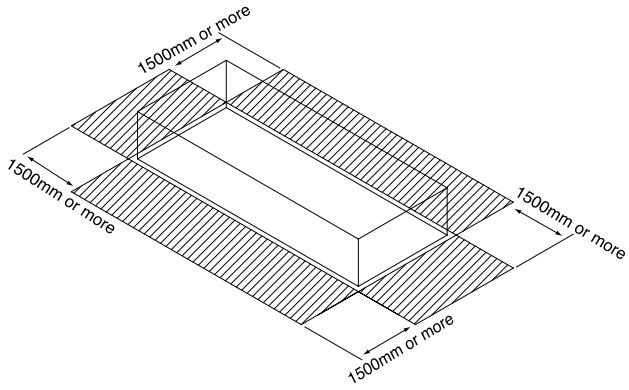
Pattern sheet (1) 	Insulation cover drain (1) 	Insulation (2) 	Insulation cover band (1) 
Insulation pipe (2) 	Insulation drain hose (2) 	Cable-tie (5)	Flexible hose (1) 
Insulation drain sub (1)	Owner's Instructions (1)	Installation manual (1)	

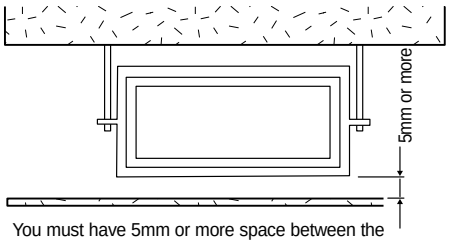
Deciding on Where to Install the Indoor Unit

Indoor Unit

- There must be no obstacles near the air inlet and outlet.
- Install the indoor unit on a ceiling that can support its weight.
- Maintain sufficient clearance around the indoor unit.
- Make sure that the water dripping from the drain hose runs away correctly and safely.
- The indoor unit must be installed in this way, that they are out of public access. (Not touchable by the users)
- After connecting a chamber, insulate the connection part between the indoor unit and the chamber with t10 or thicker insulation. Otherwise, there can be air leak or dew from the connection part.

Space Requirements for Indoor Unit



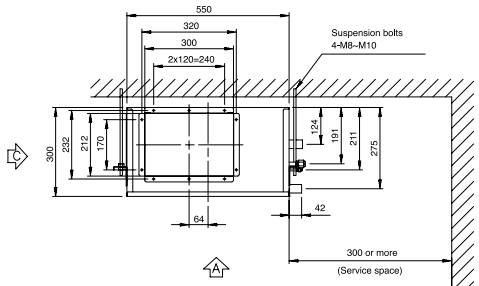


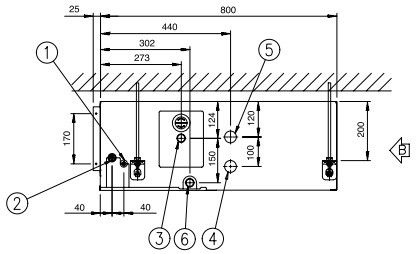
You must have 5mm or more space between the ceiling and the bottom of indoor unit. Otherwise, the noise from the vibration of indoor unit may bother the user.

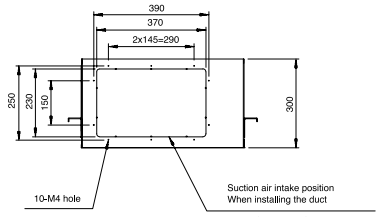
Drawing of the indoor unit

Unit : mm

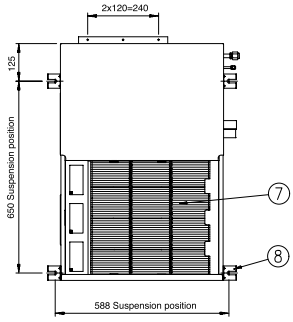
✶✶020/026/032/035/040✶✶



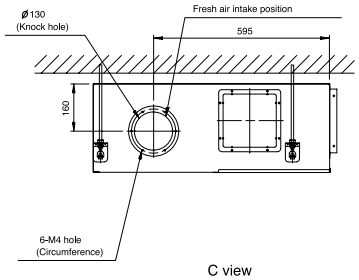




B view



A view

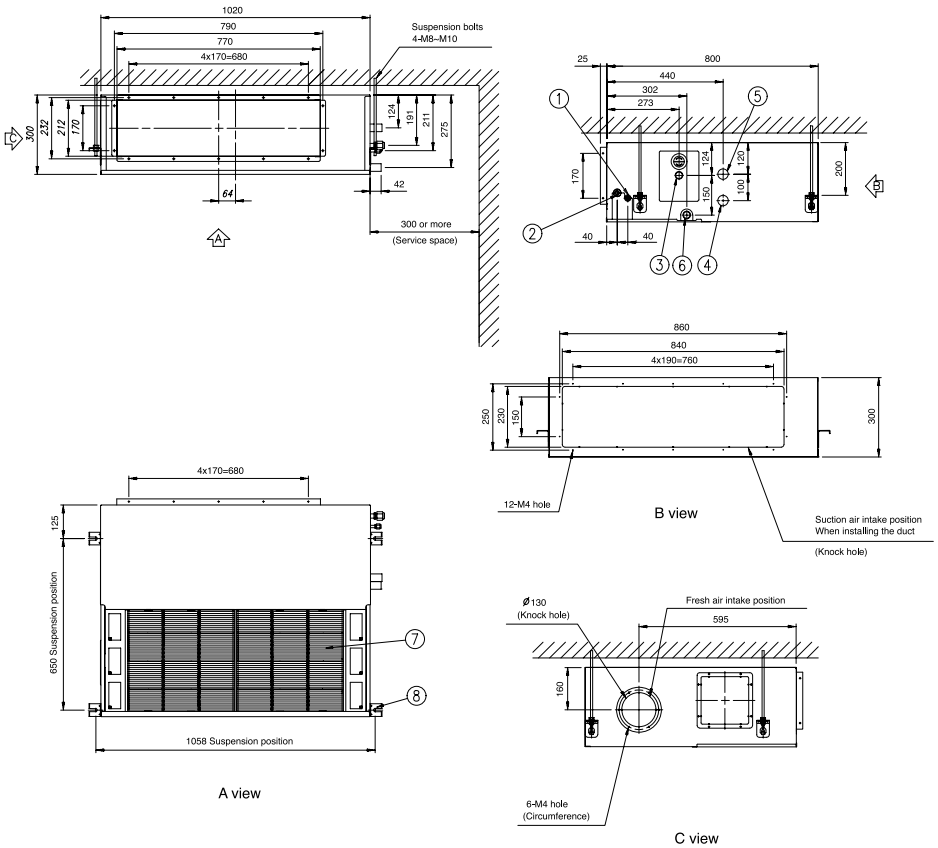


C view

No.	Name	Description
1	Liquid pipe connection	ø6.35 Flare
2	Gas pipe connection	ø12.70 Flare
3	Drain pipe connection	OD29 ID25(without drain pump)
4	Interunit wiring port	
5	Power wiring port	
6	Drain pipe connection	OD29 ID25(with drain pump)
7	Air filter	
8	Hook	For M8~M10

Unit : mm

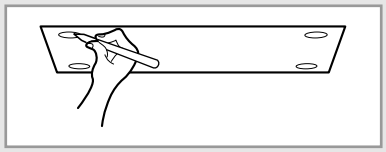
✶✶052/070/072✶✶



No.	Name	Description
1	Liquid pipe connection	ø9.52 Flare
2	Gas pipe connection	ø15.88 Flare
3	Drain pipe connection	OD29 ID25(without drain pump)
4	Interunit wiring port	
5	Power wiring port	
6	Drain pipe connection	OD29 ID25(with drain pump)
7	Air filter	
8	Hook	For M8~M10

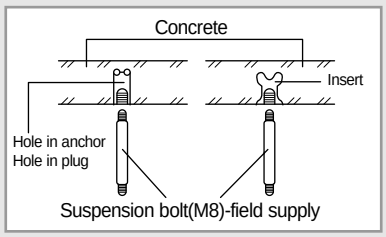
Indoor Unit Installation

It is recommended to install the refnet joint before installing the indoor unit.

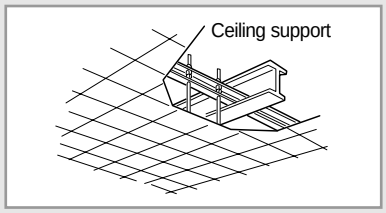


1 Place the pattern sheet on the ceiling at the spot where you want to install the indoor unit.

Note ◆ Since the diagram is made of paper, it may shrink or stretch slightly due to temperature or humidity. For this reason, before drilling the holes maintain the correct dimensions between the markings; refer to page 6 or 7.

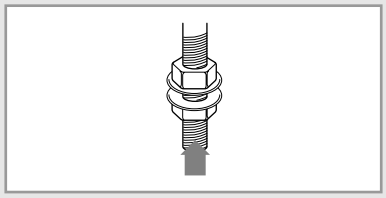


2 Insert bolt anchors. Use existing ceiling supports or construct a suitable support as shown in figure.



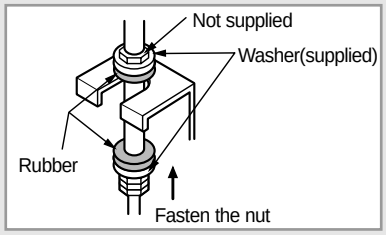
3 Install the suspension bolts depending on the ceiling type.

IMPORTANT ◆ **Ensure that the ceiling is strong enough to support the weight of the indoor unit.**
Before hanging the unit, test the strength of each attached suspension bolt.
◆ **If the length of suspension bolt is more than 1.5m, it is required to prevent vibration.**



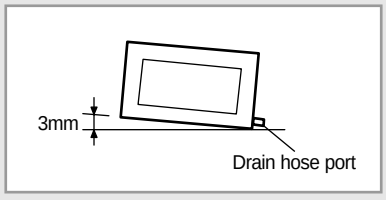
4 Screw eight nuts to the suspension bolts making space for hanging the indoor unit.

IMPORTANT **You must install the suspension bolts more than four when installing the indoor unit.**



5 Hang the indoor unit to the suspension bolts between two nuts.

Note ◆ Piping must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the piping into position for connection to the unit before placing the unit inside the ceiling.



6 Screw the nuts to suspend the unit.

7 Adjust level of the unit by using measurement plate for all 4 sides.

Note ◆ For proper drainage of condensate, give a 3mm slant to the drain hose port.

Purging the unit

On delivery, the indoor unit is loaded with refrigerant gas.

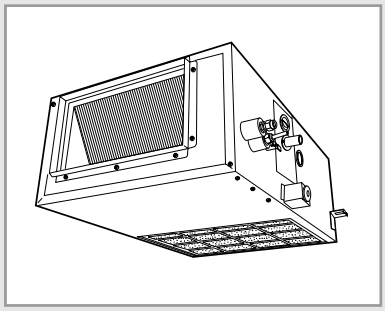
All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as follows.

Unscrew the pinch pipe at the end of each refrigerant pipe.

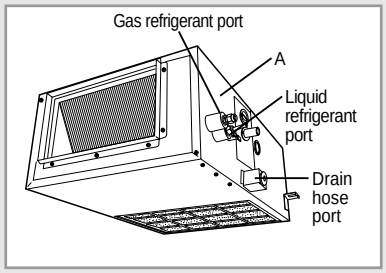
Result: All inert gas escapes from the indoor unit.

Note

- To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the pinch pipe completely until you are ready to connect the piping.



Connecting the Refrigerant Pipe

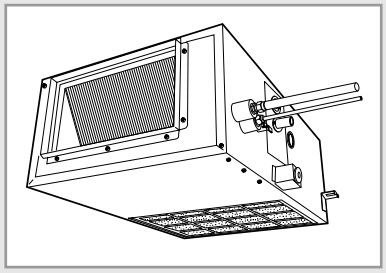


There are two refrigerant pipes of differing diameters:

- A smaller one for the liquid refrigerant
- A larger one for the gas refrigerant
- The inside of copper tube must be clean & has no dust.

The connection procedure for the refrigerant pipes varies according to the exit position of the pipes from the indoor unit, as seen when facing the indoor in the "A" side.

- Liquid refrigerant port
- Gas refrigerant port
- Drain hose port



1 Remove the pinch pipe on the pipes and connect the assembly pipes to each pipe, tightening the nuts, first manually and then with a wrench, a spanner applying the following torque.

Outer Diameter	Torque (kgf•cm)
6.35 mm (1/4")	144~176
9.52 mm (3/8")	333~407
12.70 mm (1/2")	504~616
15.88 mm (5/8")	630~770
19.05 mm (3/4")	990~1210
22.23 mm (7/8")	990~1210

Note ◆ If the pipes must be shortened refer to page 11.

2 Must use insulator which is thick enough to cover the refrigerant tube to protect the condensate water on the outside of pipe falling onto the floor and the efficiency of the unit will be better.

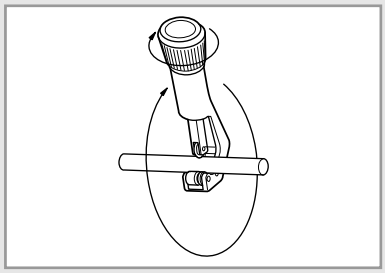
3 Cut off any excess foam insulation.

4 Be sure that there must be no crack or wave on the bended area.

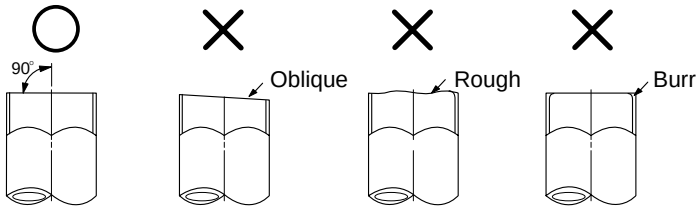
5 It would be necessary to double the insulation thickness(10mm or more) to prevent condensation even on the insulator when if the installed area is warm and humid.

Cutting/Flaring the Pipes

1 Make sure that you have the required tools available (pipe cutter, reamer, flaring tool and pipe holder).



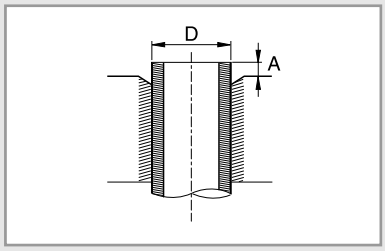
2 If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.



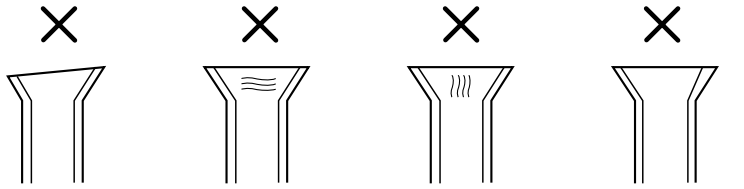
3 To prevent any gas from leaking out, remove all burrs at the cut edge of the pipe, using a reamer.

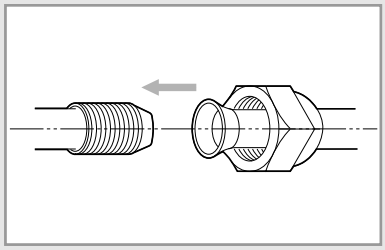
4 Slide a flare nut on to the pipe and modify the flare.

Outer Diameter (D)	Depth (A)
6.35 mm (1/4")	1.3mm
9.52 mm (3/8")	1.8mm
12.70 mm (1/2")	2.0mm
15.88 mm (5/8")	2.2mm
19.05 mm (3/4")	2.2mm
22.23 mm (7/8")	2.2mm



5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.





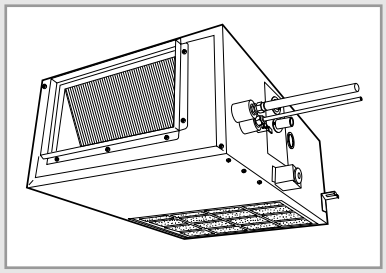
6 Align the pipes and tighten the flare nuts first manually and then with a wrench, applying the following torque.

Outer Diameter	Torque (kgf•cm)
6.35 mm (1/4")	144~176
9.52 mm (3/8")	333~407
12.70 mm (1/2")	504~616
15.88 mm (5/8")	630~770
19.05 mm (3/4")	990~1210
22.23 mm (7/8")	990~1210

CAUTION

- ***In case of welding the pipe, you must weld with nitrogen gas blowing.***

Performing Leak Test & Insulation

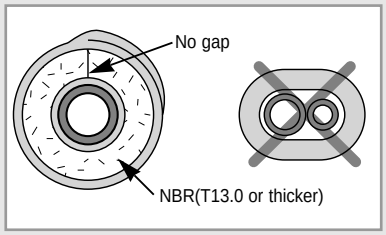


Leak Test

To check for gas leaks on the indoor unit, check the connection part of each refrigerant pipe by using a leak detector.

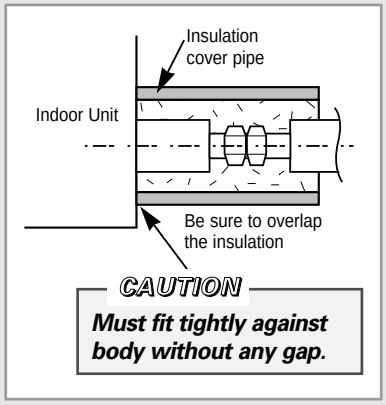
Insulation

Once you have checked that there are no leaks in the system, you can insulate the piping and hose.



1 To avoid condensation problems, place **T13.0 or thicker Acrylonitrile Butadien Rubber** separately around each refrigerant pipe.

Note ◆ Always make the seam of pipes face upwards.

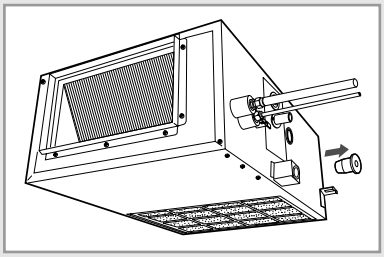

Insulation cover pipe
Indoor Unit
Be sure to overlap the insulation
CAUTION
Must fit tightly against body without any gap.

2 Wind insulating tape around the pipes.

3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.

Drain Hose Installation

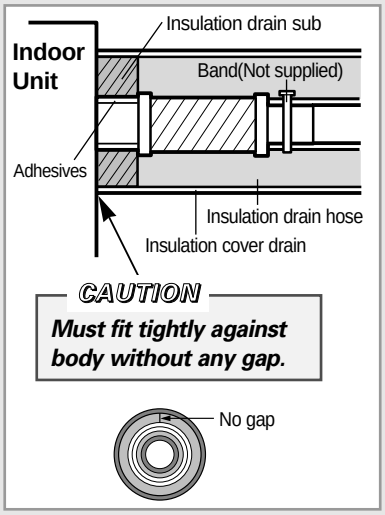
Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside. The drain hose can be installed to the right or left side of the base pan.



1 Remove the rubber cap of the drain hose port.

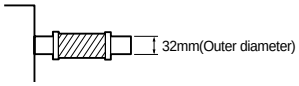
2 Insert the flexible hose to the drain hose port.

Note
- ◆ Attach the drain hose to the drain hose port with an adhesive for PVC and tape to prevent water leaks, then secure the hose with a band etc..(The band is not supplied with the air conditioner.)



3 Install the drain hose so that its length can be as short as possible.
Internal diameter of the drain hose should be the same or slightly bigger than the external diameter of the drain hose port.

- ◆ **Inner diameter of the drain hose**



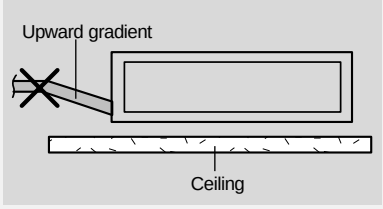
Note
- ◆ Give a slightly slant to the drain hose for proper drainage of condensate.
- ◆ Secure the drain hose with an adhesive for PVC and tape not to be separated from the unit.

4 Wrap the drain hose with the insulation drain as shown in figure and secure it.

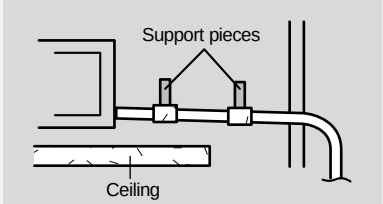
CAUTION

When not installing the drain pump

Do not give the hose and upward gradient after the connection port.
This will cause water to flow backwards when the unit is stopped, resulting in water leaks.

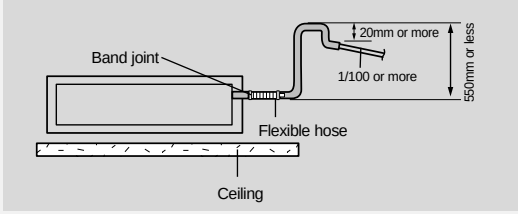


Do not apply force to the piping on the unit side when connecting the drain hose. The hose should not be allowed to hang loose from its connection to the unit. Fasten the hose to a wall, frame or other support as close to the unit as possible.



When installing the drain pump

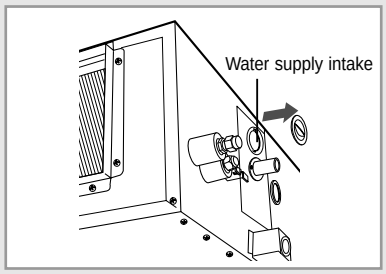
When installing a flexible hose, the difference of pivot of a drain hose port and a drain hose must be within 20mm.
If the difference of each pivot is more than 20mm, or a flexible hose is bent steeply, a flexible hose may leak.



Drain Hose Installation (cont.)

Testing the drainage

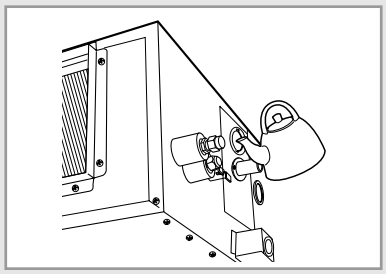
Prepare a little water about 5 liters.



1 Open the cover of water supply intake by turning and pulling the cover.

2 Pour water into the the indoor unit as shown in figure.

Note ◆ If you do not pour water inside the water supply intake, water may spill from the indoor unit.



3 Confirm that the water flows out through the drain hose.

4 Reassemble the cover of water supply intake.

Connecting the Connection Cord

The indoor unit is powered from the outdoor unit via the connection cord.

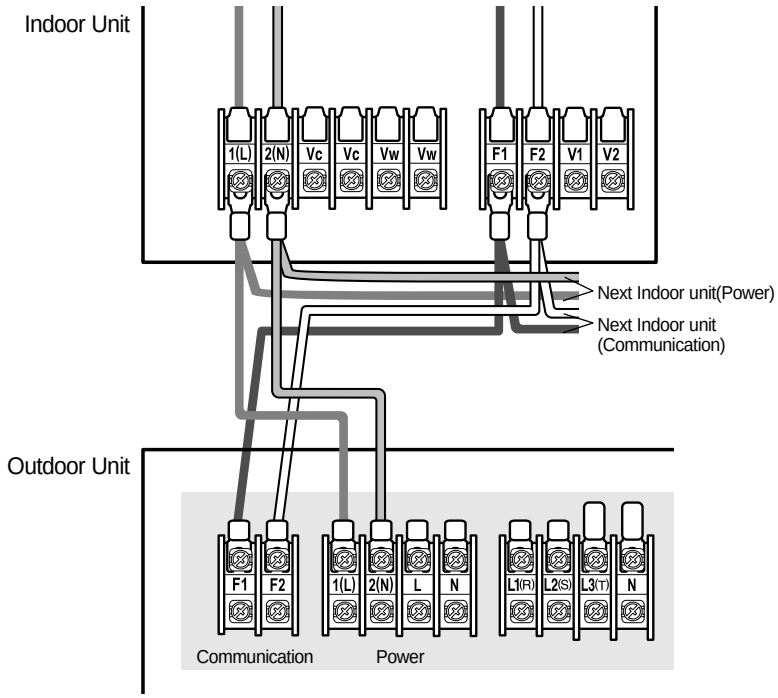
1 Remove the screw on the electrical component box and remove the cover plate.

2 Route the connection cord through the side of the indoor unit and connect the cable to terminals; refer to the figure below.

3 Route the other end of the cable to the outdoor unit through the ceiling & the hole on the wall.

4 Reassemble the electrical component box cover, carefully tightening the screw.

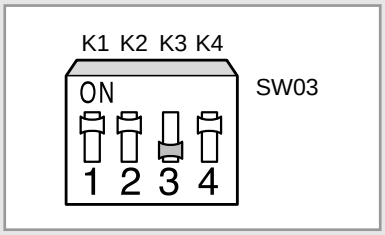
Wiring Diagram



Increasing Fan Speed

If external static pressure is too great(due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem can be solved by increasing the fan speed using the following procedure.

1 Remove the screw on the electrical component box and remove the cover plate.



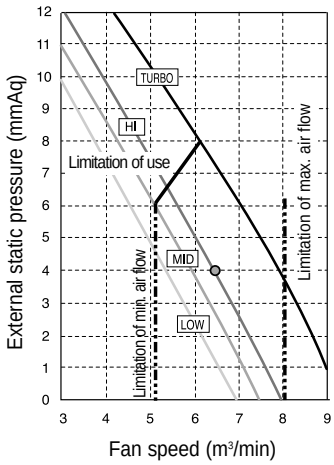
2 Adjust the DIP switch(SW03) on the main PCB to the “OFF” position.

Switch No.	Switch Position	Function
K3	ON	Normal speed
	OFF	High speed

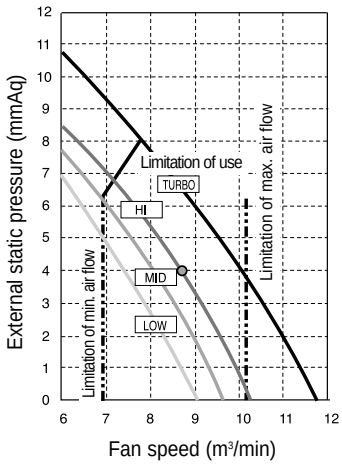
3 Re-install the cover plate and join the removed screw.

Graph of fan speed and limitation of external static pressure

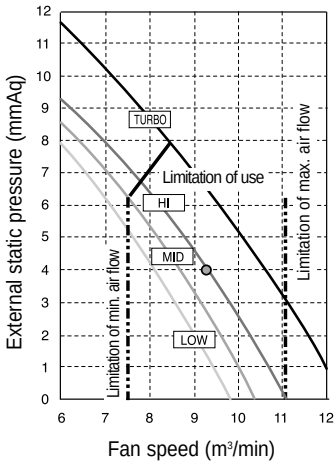
Model : ✶✶020✶✶



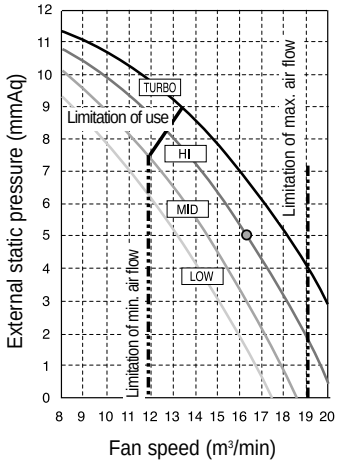
Model : ✶✶026/032✶✶



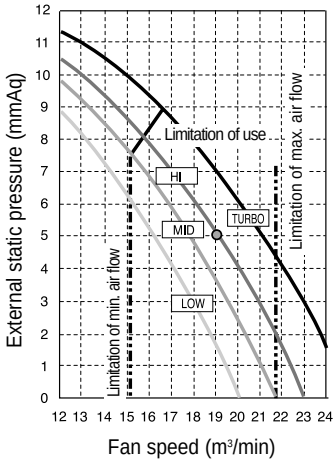
Model : ✶✶035/040✶✶



Model : ✶✶052✶✶



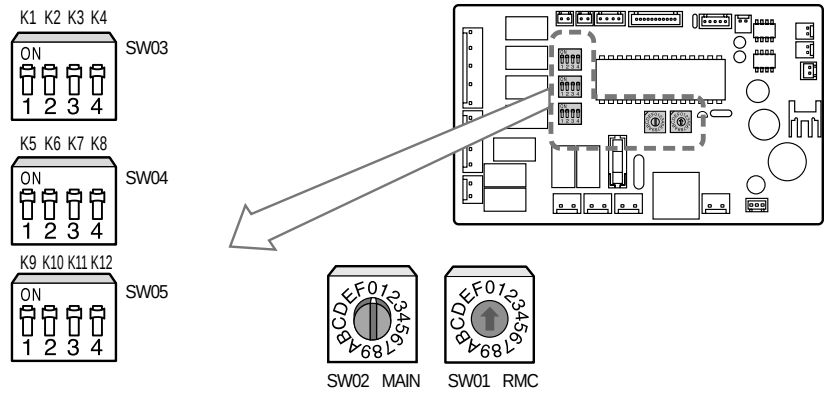
Model : ✶✶070/072✶✶



Assigning Address to Indoor Unit

1 Before installing the indoor unit, assign an address to the indoor unit according to the air conditioning system plan.

2 The address of the indoor unit is assigned by adjusting MAIN(SW02) and RMC(SW01) rotary switches.



3 The MAIN address is for communication between the indoor unit and the outdoor unit. Therefore, you must set it to operate the air conditioner properly.

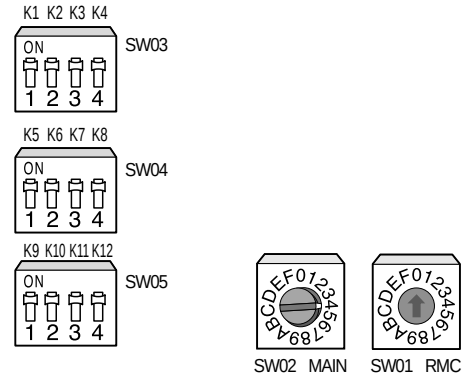
4 It is required to set the RMC address if you install the wired remote controller and/or the centralized controller.

5 If you install optional accessories such as the wired remote controller, centralized controller, etc. see an appropriate installation manual.

6 If an optional accessory is not installed, you do not have to set the RMC address. However, adjust K1 and K2 switches of the SW03 DIP switch to "ON" position in this case.

7 Set the MAIN address by adjusting the rotary switch(SW02) from 0 to F. Each indoor unit connected to the same outdoor unit must have different address.

i. e. If an indoor unit does not have an optional accessory and its MAIN address is "4"

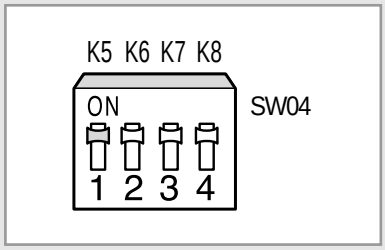


Additional Functions

Compensation for lost temperature in heating operation

◆ Reduces the difference between an actual room temperature and a sensed temperature by the air conditioner when heating.

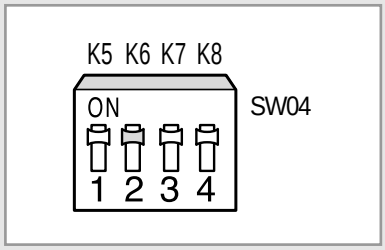
Switch No.	Switch ON	Switch OFF
K5	2°C compensation	5°C compensation



Adjusting filter cleaning cycle

◆ You can adjust the cycle for filter sign indicator.

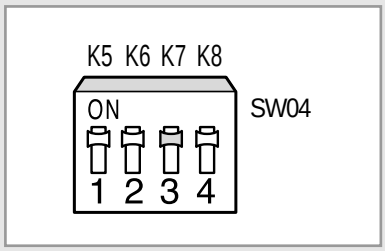
Switch No.	Switch ON	Switch OFF
K6	1000 hours	2000 hours



Hot water heater

◆ You must adjust the K7 when you install the hot water heater.

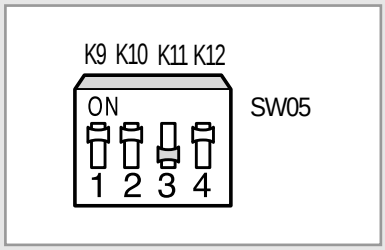
Switch No.	Switch ON	Switch OFF
K7	No use of hot water heater	Use of hot water heater



Control of electronic expansion valve at the indoor unit off

◆ When an indoor unit off makes refrigerant noise, set K11 to OFF position to reduce the noise. However, if a distributor kit is installed, K11 must be at ON position.

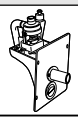
Switch No.	Switch ON	Switch OFF
K11	Electronic expansion valve step 80	Electronic expansion valve step 0 (Sub cool control)

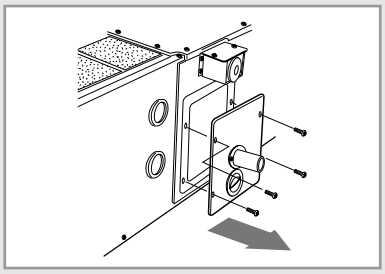


Drain Pump Installation (optional)

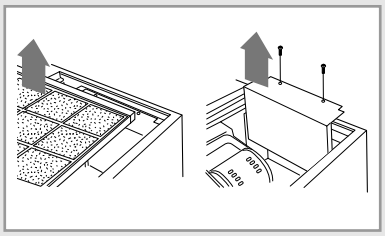
It is recommended to install the drain pump before installing the indoor unit.

Accessories

Drain pump & Float switch	Cable-tie	Cable clamp
1	2	2
		

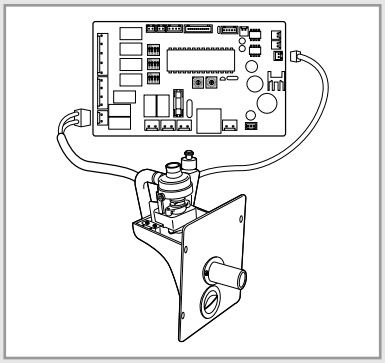


1 Disassemble the existing bracket for drain pump by unscrewing 4 screws.

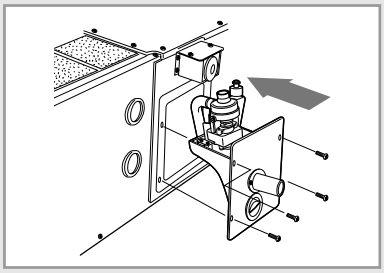


2 Connect the drain pump cable to yellow terminal(CN75) and the float switch to black terminal(CN51).

Note ◆ Remove the air filter and open the electrical component box before connecting the connector.

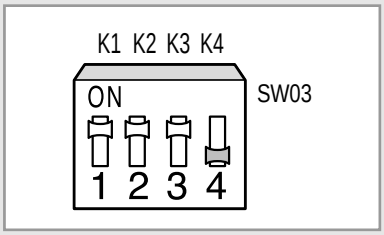


3 Install the new bracket for drain pump.



4 Adjust K4 DIP switch(SW03) to the "OFF" position.

Switch No.	Switch Position	Using Drain Pump
K4	ON	X
	OFF	O



Note ◆ Wrap the drain tube outlet on the right and left side of the indoor unit with an insulating materials.

Detection of errors

- If an error occurs during the operation, an LED flickers and the operation is stopped except the LED.
- If you re-operate the air conditioner, it operates normally at first, then detect an error again.

LED Display on the receiver & display unit

LED Display

Abnormal conditions	Indicators					Operating
	Concealed Type					
	Blue	Red				
	Standard Type					
Power reset	◑	X	X	X	X	
Error of temperature sensor in indoor unit (OPEN/SHORT)	X	X	◑	X	X	Displayed on appropriate indoor unit which is operating
Error of heat exchanger sensor in indoor unit Error of heat exchanger OUT sensor in indoor unit Error of outlet temperature sensor in indoor unit (OPEN/SHORT): For heat pump models only	◑	X	◑	X	X	Displayed on appropriate indoor unit which is operating
Error of mixed operation	X	◑	X	◑	X	
Error of outdoor temperature sensor Error of COND sensor Error of DISCHARGE sensor	◑	X	X	◑	X	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
1. No communication for 2 minutes between indoor unit and outdoor unit (communication error for more than 2 minutes) 2. Indoor unit receiving the communication error from outdoor unit 3. Outdoor unit tracking 3 minute error 4. When sending the communication error from outdoor unit the mismatching of the communication numbers and installed numbers after completion of tracking. (communication error for more than 2 minutes)	X	X	◑	◑	X	1. Error of indoor unit: Displayed on the indoor unit regardless of operation 2. Error of outdoor unit: Displayed on the indoor unit which is operating

● On ◑ Flickering X Off

- If you turn off the air conditioner when the LED is flickering, the LED is also turned off.
- If you re-operate the air conditioner, it operates normally at first, then detect an error again.

LED Display

Abnormal conditions	Indicators					Operating
	Concealed Type					
	Blue	Red				
	Standard Type					
Self-diagnostic error (including the indoor unit not detected) 1. Error of electronic expansion valve close 2. Error of electronic expansion valve open 3. Breakaway of EVA OUT sensor 4. Breakaway of EVA IN sensor	X	X	◑	◑	◑	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
5. Breakaway of COND MID sensor 6. 2nd detection of refrigerant completely leak 7. 2nd detection of high temperature COND 8. 2nd detection of high temperature DISCHARGE 9. COMP DOWN due to 2nd detection of low pressure switch 10. Error of reverse phase 11. Compressor down due to 6th detection of freezing 12. Self-diagnosis of condensation sensor (G8, G9) 13. Compressor down due to condensation ratio control	X	X	◑	◑	◑	Displayed on appropriate indoor unit which is operating Displayed on outdoor unit
Error of float switch	X	X	X	◑	◑	
Error of setting option switches for optional accessories	X	X	◑	X	◑	
EEPROM error	◑	X	◑	◑	X	
EEPROM option error	◑	◑	◑	◑	◑	

● On ◑ Flickering X Off

- If you turn off the air conditioner when the LED is flickering, the LED is also turned off.
- If you re-operate the air conditioner, it operates normally at first, then detect an error again.

Wired remote controller

◆ If an error occurs, ▟ is displayed on the wired remote controller.
If you would like to see an error code, press the Test button.

Display	Explanation	Remark
Er↔EA	Error of communication between the outdoor unit and the wired remote controller	Communication errors
Er↔Eb	Error of communication between the indoor unit and the wired remote controller	
Er↔Ax	Breakaway of indoor unit eva sensor	Displays related to indoor unit (x : 0~F)
Er↔bx	Breakaway of indoor unit eva out sensor	
Er↔Cx	Open error of electronic expansion valve	
Er↔dx	Close error of electronic expansion valve	
Er↔Fx	Breakaway of eva mid and eva out sensors in indoor unit	
Er↔ox	Error of float switch	
Er↔qx	OPEN/SHORT error of room sensor in indoor unit	
Er↔rx	OPEN/SHORT error of eva in sensor in indoor unit	
Er↔sx	OPEN/SHORT error of eva out sensor in indoor unit	
Er↔tx	EEPROM error	
Er↔Ux	EEPROM option error	
Er↔ux	Error of fan starting	
Er↔Eo	Error of outdoor unit	For the details, refer to the installation manual of the outdoor unit.

The order of priority : EA → Eb → Cx → dx → bx → Ax → Fx → ox → qx → rx → sx → tx → Ux → vx → Eo
- In case that the same error displays from multi-indoor units, the one having the faster address has the priority.

Chapter 2

OPTIONAL ACCESSORIES

■ Parts List 26

Parts List

Receiver & Display Unit Accessories

Concealed Type

Receiver & display unit	STS 2S-2x10 tapped screw	2S-4x12 tapped screw	Wire kit (length 10m)	Owner's instructions	Installation manual
1	4	2	1	1	1

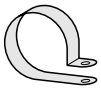
Standard Type

Receiver & display unit	M4x16 tapped screw	Cable-tie	Cable clamp	Wire kit (length 10m)	Owner's instructions	Installation manual
1	7	2	5	1	1	1

Wireless Remote Controller Accessories

Wireless remote controller	Battery	Remote control holder	STS 2S-2x10 tapped screw	Owner's instructions	Installation manual
1	2	1	2	1	1

Wired Remote Controller Accessories

Wired remote controller	Cable-tie	Cable clamp	M4x16 tapped screw	Indoor unit power drawing cable	Owner's instructions	Installation manual
1	2	2	7	1	1	1
						

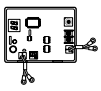
Centralized Controller Accessories

Centralized controller	Cable-tie	Cable clamp	M4x16 tapped screw	Owner's instructions	Installation manual
1	2	5	7	1	1

Function Controller Accessories

Function controller	Cable-tie	Cable clamp	M4x16 tapped screw	Owner's instructions	Installation manual
1	2	6	7	1	1

Transmitter Accessories

Transmitter	Transmitter power cable	Transmitter communication cable	Installation manual
1	1	1	1
			

Note ◆ If you would like to install the centralized controller, you must install the transmitter in the outdoor unit.

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ESTE AIRE ACONDICIONADO HA SIDO FABRICADO POR:
CE CLIMATISEUR EST FABRIQUE PAR:
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ESTE APARELHO DE AR CONDICIONADO É FABRICADO POR:
DIESE KLIMAANLAGE IST FABRIZIERT VON:
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